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(56) Documents Cited

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(58) Field of Search

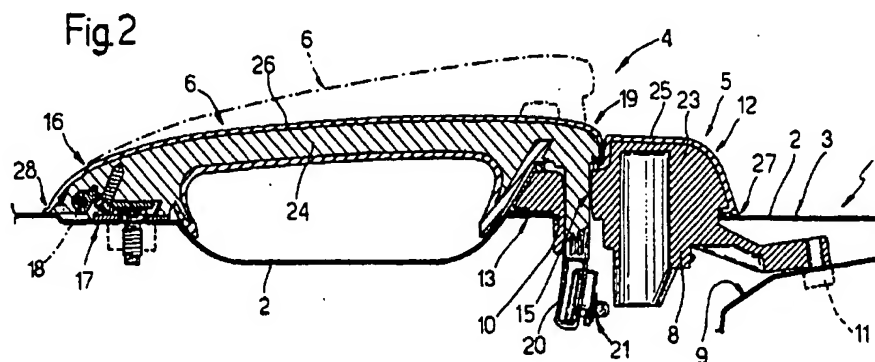
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(54) Vehicle door handle

(57) A vehicle door handle (4) wherein at least a grip body (6), which is gripped manually by a user, presents a rigid core (24), a layer (26) of soft cover material covering the core (24), and a sealing lip (28) which is forced against the panel (2) of the door (1) to define a seal; the cover layer (26) and the sealing lip (28) being integral with each other and made of injectable elastomeric material.



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Fig. 2

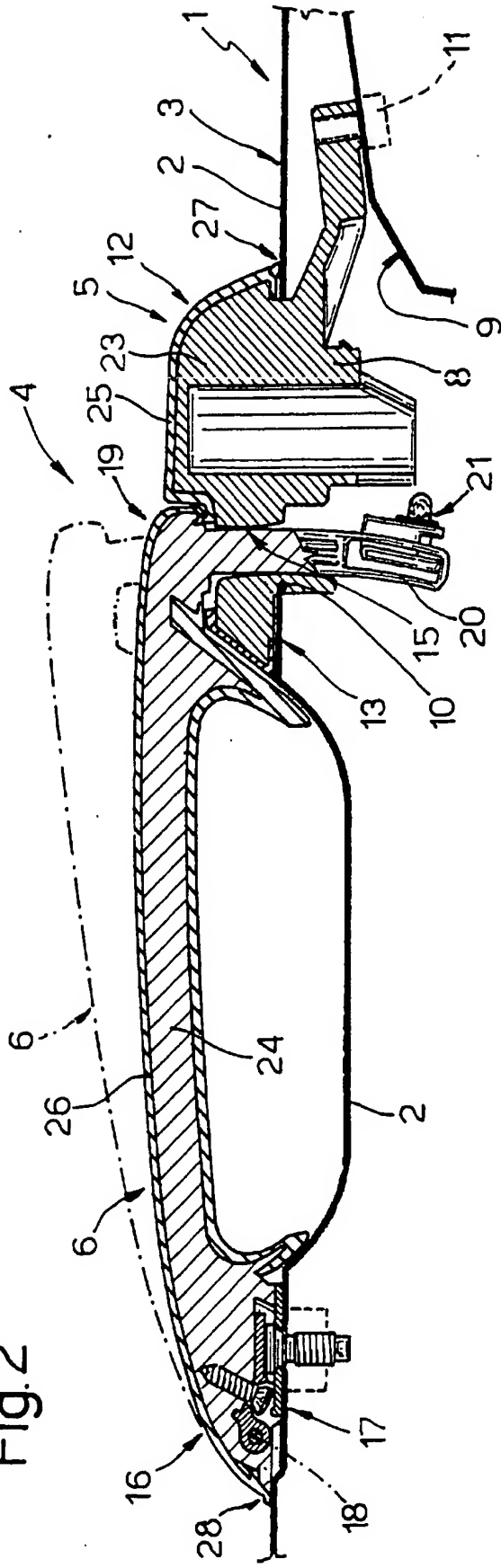
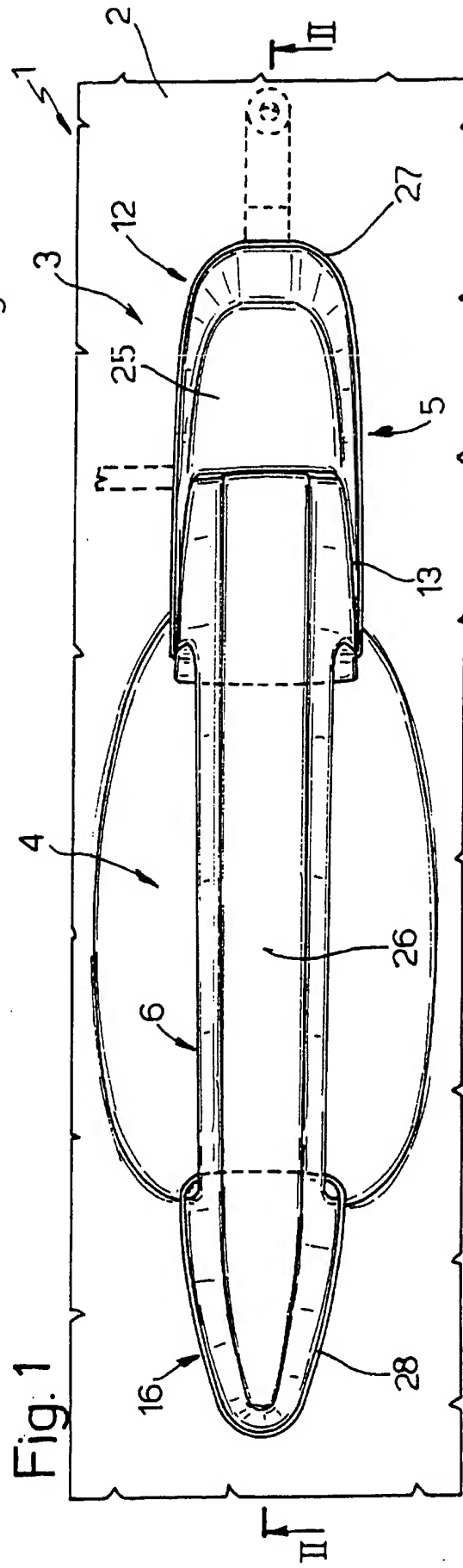


Fig. 1



VEHICLE DOOR HANDLE

The present invention relates to a vehicle door handle, and in particular to a lever-operated handle for motor vehicle doors, to which the following description refers purely by way of example.

As is known, motor vehicle lever-operated handles comprise a locating body, which is fitted integral with the vehicle door panel; and an elongated, substantially C-shaped grip, which is gripped manually by the user, and in turn comprises two opposite end portions: one hinged to the door panel, and the other cooperating in contacting manner with the locating body and normally connected to the door lock by a lever transmission.

At least the grip of known handles is normally made of molded, preferably pressure injection molded, plastic material reinforced with glass fibers, which are protected by a resin that surfaces during the molding process and provides for insulating the fibers from the outside.

Both the locating body and the grip of known handles are fitted to the door panel via the

interposition of respective seals normally made of elastomeric material and for preventing water or dust from penetrating the panel through the openings for the devices connecting the handle to the panel and the lock, and for preventing the handle from coming into contact with the paintwork of the door panel.

Though widely used, known handles of the above type present several drawbacks, due to the material of the handles, and particularly of the grip, gradually deteriorating and, within a relatively short space of time, becoming unpleasant to the touch. That is, following prolonged exposure to external agents, particularly ultraviolet rays, the film of resin covering the glass fibers wears off, so that the fibers are left exposed and directly contact the user's hand when the handle is gripped.

Moreover, known handles take a relatively long time to fit to the door, mainly on account of the seal required between each part of the handle and the door panel, and which, for both functional and aesthetic reasons, must be positioned correctly in relation to the respective part of the handle.

It is an object of the present invention to provide a straightforward, low-cost vehicle door handle designed to overcome the aforementioned drawbacks.

According to the present invention, there is provided a vehicle door handle comprising at least a grip body, which is gripped manually by a user;

characterized in that said grip body comprises a rigid core, and a layer of soft cover material covering the core.

Preferably, said cover material of the above handle is an injectable elastomeric material, and conveniently a polyester.

A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows part of a vehicle door panel featuring a handle in accordance with the teachings of the present invention;

Figure 2 shows a section along line II-II in Figure 1.

Number 1 in the accompanying drawings indicates a vehicle door (vehicle not shown) comprising a panel 2 defined by an outer surface 3; and a lever-operated handle 4 fitted to panel 2.

Handle 4 comprises a first fixed locating body 5 fitted integral with panel 2; and a second movable substantially C-shaped body 6 defining the grip of handle 4.

More specifically, and as shown in Figure 2, body 5 comprises a portion 8 extending inside a cavity 9 in panel 2 through an opening 10, and connected integral with panel 2 by means of a screw 11; and a further portion 12 projecting outwards of panel 2 beyond surface

6 and which in turn presents a through hole 15 through which cavity 9 communicates externally.

As shown in Figure 2, body 6 comprises a first end portion 16 fitted to panel 2 by a known hinge 17 having an axis 18 and for permitting body 6 to rotate, in use, about axis 18 and in relation to body 5; and a second end portion 19, which extends facing portion 13 of body 5, and in turn comprises an appendix 20 extending through hole 15 and presenting an end portion connected to the door lock (not shown) by a known lever transmission.

As shown in Figure 2, bodies 5 and 6 comprise respective rigid inner cores 23 and 24; core 23 is preferably made of metal; core 24 is conveniently made of plastic material reinforced with glass fibers at least partially embedded in the plastic material; and both bodies 5 and 6 comprise respective soft cover layers 25 and 26 respectively covering the whole portion of core 23 defining portion 12 of body 5, and the whole of core 24 with the exception of appendix 20 and the surface of portion 16 facing panel 2.

In the example shown, cover layers 25 and 26 present substantially the same thickness of over a millimeter, are both formed by injection, and are both made of elastomeric material, preferably a polyester conveniently selected from materials known commercially as "aytrell", "pebox" and "arnitel", or a polyolefin selected from materials known commercially as "alcrin",

"megol" and "santoprene".

As shown in Figure 1 and particularly in Figure 2, portions 12 and 16 terminate, on the side facing panel 2, with respective peripheral annular lips 27 and 28, each of which is made of the same material as respective cover layer 25, 26, is integral with respective cover layer 25, 26, and is forced, in use, against surface 3 of panel 2 to define a respective seal for preventing water and dust, for example, for entering cavity 9 of panel 2.

Besides presenting the same rigidity and strength as corresponding known handles, handle 4 therefore also presents the definite advantage of completely eliminating the unpleasant sensation transmitted to the user by known handles in the space of a relatively short period of time.

In fact, cover layers 25, 26 and the specific material of which they are made provide not only for permanently preventing the user's hand from coming into direct contact with respective cores 23, 24 and hence with the glass fibers in the case of body 6, but also, when the handle is gripped, for transmitting a pleasant feeling of softness which is particularly appreciated by demanding users.

Moreover, handle 4 also provides for greatly reducing assembly time and the number of parts to be

fitted between the handle and panel 2, sealing being provided for by lips 27 and 28, which, being made of elastomeric material, are deformed easily and adhere firmly to panel 2 to ensure perfect sealing.

Moreover, unlike known seals, by virtue of being integral with respective bodies 5 and 6, lips 27 and 28 eliminate any functional or aesthetic problems resulting from incorrect positioning of the seals in relation to the door panel or handle.

Clearly, changes may be made to handle 4 as described and illustrated herein without, however, departing from the scope of the present invention. In particular, materials other than those described by way of example may be used both for cores 23, 24 of bodies 5, 6 and for cover layers 25, 26, providing layers 25, 26 are relatively soft as compared with cores 23, 24, and such as to prevent discomfort to the user when gripping handle 4.

Moreover, lips 27, 28 may be made of different material from cover layers 25, 26, and/or may be formed separately from and subsequently secured to bodies 5 and 6 of handle 4.

Body 5 may also include a lock for locking door 1.

Finally, in the same way as bodies 5 and 6, handles may obviously also be formed for vehicles of any type or design without departing from the scope of the present invention.

CLAIMS

1) A vehicle door handle comprising at least a grip body, which is gripped manually by a user; characterized in that said grip body comprises a rigid core, and a layer of soft cover material covering the core.

2) A handle as claimed in Claim 1, characterized in that said cover material is an elastomeric material.

3) A handle as claimed in Claim 1 or 2, characterized in that said cover material is an injectable material.

4) A handle as claimed in any one of the foregoing Claims, characterized in that said cover material is a polyester.

5) A handle as claimed in any one of the foregoing Claims, characterized by comprising at least one sealing lip cooperating, in use, with a panel of a respective door to define a seal.

6) A handle as claimed in Claim 5, characterized in that said sealing lip is made of the same material as said cover layer.

7) A handle as claimed in Claim 6, characterized in that said sealing lip is integral with said cover layer.

8) A handle as claimed in any one of the foregoing Claims, characterized by also comprising a locating body fitted integral with a panel of a vehicle door; said

grip body comprising a first portion hinged to said panel so as to rotate in relation to said locating body about a hinge axis, and a second portion cooperating in contacting manner with the locating body; and said locating body comprising a respective rigid core, and a respective layer of soft cover material covering the respective core.

9) A handle as claimed in Claims 7 and 8, characterized by comprising, for each said body, a respective said sealing lip defining, in use, a respective said seal; each of said sealing lips being integral with and made of the same material as the respective said cover layer.

10) A vehicle door handle, substantially as described and illustrated herein with reference to the accompanying drawings.

9

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Claims searched: 1-9

Examiner: Philip Silvie
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Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): A4L (LDD); E2A (AEN, AEM)

Int CI (Ed.6): EO5B (1/00, 1/04, 65/20)

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1 120 527 A (FORD) see page 1, lines 46-50	1,8
X	GB 0 899 093 A (HAPPICH) see page 1, lines 67-78	1
X	WO 91/14063A1 (CHIVAS) see fig. 1	1 at least
X	US 5 129 694 A (AISIN SEIKI) see column 2, lines 42-63	1-4, 8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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